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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,612	11/30/2001	Sammy Haddad	20.2787	1146

7590 06/10/2003

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EXAMINER	
DEJESUS, LYDIA M	

ART UNIT	PAPER NUMBER
2859	

DATE MAILED: 06/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/006,612	HADDAD ET AL.
	Examiner	Art Unit
	Lydia M. De Jesús	2859

-- The MAILING DATE of this communication appears on th cover she t with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1 136(a) In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U S C § 133)
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment See 37 CFR 1 704(b)

Status

1)☒ Responsive to communication(s) filed on *24 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 March 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s) _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on February 13, 2002 have been approved by the examiner. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

2. The copy of papers filed on ***February 13, 2002*** (certificate of mailing dated ***January 22, 2002***) has been placed of record. The Office will add the original mailroom date and use the copy provided by applicant as the permanent Office record of the above-identified papers in place of the copy made by the Office.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1through 8, 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis in view of Stewart.

Curtis discloses a method of calculating a static formation temperature in a reservoir penetrated by a wellbore, comprising: estimating the static formation temperature [TEMP(DG)]: calculating a formation fluid temperature at the wellbore [TEMP (DE)], said calculation based, in part, on the estimated static formation temperature (see lines 57-68 of column 11); measuring the temperature of a sample of formation fluid at the wellbore; comparing the calculated formation fluid temperature at the wellbore with the measured temperature of the formation fluid (see lines 15-22 of column 25); and predicting the static formation temperature by altering the estimate of the formation fluid temperature until an error between the calculated formation fluid temperature at the wellbore and the measured formation fluid temperature is minimized (see lines 11-22 of column 14, lines 46-68 of column 26 and Figure 5).

Said calculation of formation fluid temperature at the wellbore comprises solving radial heat flux equations (see lines 12-17 of column 30).

With respect to claim 12: Curtis discloses a method of calculating a static formation temperature in a reservoir penetrated by a wellbore [20], comprising: estimating the static formation temperature [TEMP(DG)] in the reservoir and a wellbore fluid temperature [TEMP(DE)]; creating a calculated formation fluid temperature at the wellbore versus time profile for fluid removed form the formation by a sink probe (see lines 7-45 of column 7), based upon, in part on the estimates of the static formation temperature in the reservoir and the wellbore fluid temperature; measuring the temperature of the formation fluid at the wellbore removed from the formation by the sink probe(see lines 31-37 of column 14 and lines 46-68 of

column 26), and creating a measured fluid formation temperature at the wellbore versus time profile(see lines 7-60 of column 7); comparing the measured fluid formation temperature at the wellbore versus time profile to the calculated formation fluid temperature at the wellbore versus time profile(see lines 14-18 of column 19); and predicting the static formation temperature by altering the estimates of the static formation fluid temperature in the reservoir and a wellbore fluid temperature until the error between the measured fluid formation temperature at the wellbore versus time profile to the calculated formation fluid temperature at the wellbore versus time profile is minimized (see lines 62-58 of column 26 and Figure 5). Curtis further discloses that injection of fluid into the wellbore is deactivated during the disclosed measurement method (see lines 42-45 of column 2) and hence it is considered that the sink probe is run into the wellbore after the wellbore fluid circulation within the wellbore has ceased.

Curtis discloses a method as recited, as stated above, but fails to disclose the following limitations:

- the calculation of formation fluid temperature at the wellbore comprising developing a three-dimensional fluid flow model through the reservoir, as recited in claims 1 and 3, wherein the three-dimensional fluid flow model through the reservoir is developed using an estimate formation fluid withdrawal rate at the wellbore, as recited in claim 4;

- the calculation of formation fluid temperature at the wellbore comprising solving radial heat flux equations in conjunction with a three-dimensional fluid flow model to develop a calculated fluid formation temperature at the wellbore versus time profile, as recited in claim5, wherein the measured temperature of a sample of formation fluid at the wellbore is used to develop a measured temperature of a sample of formation fluid at the wellbore versus time

profile, as recited in claim 6, and wherein the error between the measured temperature of a sample of formation fluid at the wellbore versus time profile and the calculated formation fluid temperature at the wellbore versus time profile is quantified, as recited in claim 7, and further wherein the static formation temperature is predicted by minimizing the error between the measured temperature of a sample of formation fluid at the wellbore versus time profile and the calculated formation fluid temperature at the wellbore versus time profile, as recited in claim 8.

Stewart teaches the use of radial heat flux equations in conjunction with a three-dimensional fluid flow model to develop a calculated fluid formation temperature at a volume of the reservoir versus time profile (see abstract, lines 42-68 of column 4, lines 3-40 of column 5, lines 23-49 of column 6), said model also taking into account the withdrawal rate (see line 43 of column 21 through line 68 of column 24). Stewart further shows that a measurement is preformed of a sample of formation temperature fluid at a given location in said volume in the wellbore and an error between the measured temperature of the sample and the calculated formation fluid temperature at said given location in the volume is quantified (see lines 8-51 of column 19 and lines 1-24 of column 7) and further the error is minimized between the measured temperature of the sample at a given location in the volume and the calculated formation fluid temperature (see lines 20-24 of column 7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to expand the method disclosed by Curtis by adding the step of solving radial heat flux equations and developing a three dimensional fluid flow model in order to calculate the formation fluid temperature at the wellbore, as taught by Stewart, in order to improve the accuracy of the estimated formation temperature.

With respect to claim 17: It is considered that the steps recited in said claim, as previously addressed above, will be performed during the method resulting from the combination of Curtis and Stewart.

6. Claims 9-11, 13-16 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis in view of Stewart as applied to claims 1-8, 12, 17 above, and further in view of Smith, Jr. et al. [U.S. Patent 4,370,886, hereinafter Smith].

Curtis and Stewart together disclose a method as claimed, as stated above in paragraph 5, and Curtis discloses inserting a sink probe [45] into the wellbore, wherein the sink probe is run into the wellbore on a wireline/tubular string [42] but they fail to disclose the steps of engaged the sink probe with a wellbore wall and removing fluid from the formation at the wellbore wall by the sink probe at a substantially known withdrawal rate.

However, Smith teaches that it is very well known in the art of testing a formation fluid, to insert a sink probe within the wellbore and engage the sink probe to a wellbore wall, and withdraw a sample of formation fluid for which certain parameters will be measured i.e., pressure and temperature, and return/purge the sample of fluid to the formation. The sample is withdrawn from and returned to the formation by the use of controlled valves and hence it is considered that the withdrawal rate is substantially known.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the sink probe configuration of the combination of Curtis and Stewart for one as that shown by Smith, in which the sink probe is engaged by the wellbore wall and a sample of formation fluid is withdrawn into the sink probe, in order to isolate a known volume of formation fluid sample to further ascertain the free gas amount of the sample

Response to Arguments

7. Applicant's arguments with respect to claims 1-8, 12 and 17 have been considered but are moot in view of the new ground(s) of rejection.

8. Applicant's arguments, see Paper 10, filed March 24, 2003, with respect to the rejection(s)of claims 9-11, 13-16 under 35 U.S.C. 102 (b) and of claims 18-21 under 35 U.S.C. 103 (a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view the newly found prior art reference of Smith, Jr. which shows the use of a probe as recited in said claims.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lydia M. De Jesús whose telephone number is (703) 306-5982. The examiner can normally be reached on 12:30 to 8:00 p.m., Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F.F. Gutierrez can be reached on (703) 308-3875. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

LDJ
June 2, 2003

Diego F.F. Gutierrez
Supervisory Patent Examiner
Technology Center 2800

CHRISTOPHER W. FULTON
PRIMARY EXAMINER